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CLAIMS

We claim:

1. An isolated oligonucleotide comprising at least 12 consecutive nucleotides of a nucleic acid sequence selected from the group of consisting of: SEQ ID NO: 1, SEQ ID NO: 2; SEQ ID NO:3; SEQ ID NO: 4; SEQ ID NO: 5; SEQ ID
10 NO: 6; SEQ ID NO: 7; SEQ ID NO: 8; SEQ ID NO: 9; SEQ ID NO: 10; SEQ ID NO: 11; SEQ ID NO: 12; SEQ ID NO: 13; SEQ ID NO: 14; SEQ ID NO: 15; SEQ ID NO: 16; SEQ ID NO: 17; SEQ ID NO: 18; SEQ ID NO: 19; SEQ ID NO: 20; SEQ ID NO: 21; SEQ ID NO: 22; SEQ ID NO: 23; SEQ ID NO: 24; SEQ ID NO: 25; SEQ ID NO: 26; SEQ ID NO: 27; SEQ ID NO: 28; SEQ ID NO: 29; SEQ ID NO: 30; SEQ
15 ID NO: 31; SEQ ID NO: 32; SEQ ID NO: 33; SEQ ID NO: 34; SEQ ID NO: 35; SEQ ID NO: 36; SEQ ID NO: 37; SEQ ID NO: 38; SEQ ID NO: 39; SEQ ID NO: 40; SEQ ID NO: 41; SEQ ID NO: 42; SEQ ID NO: 43; SEQ ID NO: 44; SEQ ID NO: 45; SEQ ID NO: 46; SEQ ID NO: 47; SEQ ID NO: 48; SEQ ID NO: 49; SEQ ID NO: 50; SEQ ID NO: 51; SEQ ID NO: 52; and SEQ ID NO: 53; wherein the oligonucleotide is
20 capable of binding selectively to DNA indicating fluoroquinolone resistance in *Bacillus anthracis*.
2. The oligonucleotide of Claim 1 immobilized on a solid surface.
3. The oligonucleotide of Claim 1, further comprising an observable marker.
- 25 4. The oligonucleotide of Claim 3, wherein the observable marker is a fluorescent label.
5. The oligonucleotide of Claim 3, wherein the observable marker is a radioactive group.

5 6. The oligonucleotide of Claim 1, wherein the fluoroquinoline is ciprofloxacin.

 7. A pair of oligonucleotide primers selected from the group of oligonucleotide pairs consisting of: SEQ ID NO: 1 and SEQ ID NO: 2; SEQ ID NO: 3 and SEQ ID NO: 4; SEQ ID NO: 5 and SEQ ID NO: 6; SEQ ID NO: 7 and SEQ ID NO: 8; SEQ ID NO: 9 and SEQ ID NO: 10; SEQ ID NO: 11 and SEQ ID NO: 12; SEQ ID NO: 13 and SEQ ID NO: 14; SEQ ID NO: 15 and SEQ ID NO: 16; SEQ ID NO: 17 and SEQ ID NO: 18; SEQ ID NO: 19 and SEQ ID NO: 20; SEQ ID NO: 21 and SEQ ID NO: 22; SEQ ID NO: 23 and SEQ ID NO: 24; SEQ ID NO: 25 and SEQ ID NO: 26; SEQ ID NO: 27 and SEQ ID NO: 28; SEQ ID NO: 29 and SEQ ID NO: 30; SEQ ID NO: 31 and SEQ ID NO: 32; SEQ ID NO: 33 and SEQ ID NO: 34; SEQ ID NO: 35 and SEQ ID NO: 36; SEQ ID NO: 37 and SEQ ID NO: 38; and SEQ ID NO: 39 and SEQ ID NO: 40; wherein the pair of oligonucleotide primers is capable of binding selectively to DNA indicating fluoroquinoline resistance in *Bacillus anthracis*.

20 8. The pair of oligonucleotides in Claim 7, wherein the fluoroquinoline is ciprofloxacin.

 9. An oligonucleotide primer selected from the group consisting of: SEQ ID NO: 41; SEQ ID NO: 42; SEQ ID NO: 43; SEQ ID NO: 44; SEQ ID NO: 45; SEQ ID NO: 46; SEQ ID NO: 47; SEQ ID NO: 48; SEQ ID NO: 49; SEQ ID NO: 50; SEQ ID NO: 51, SEQ ID NO: 52; and SEQ ID NO: 53, wherein the primer is capable of detecting a single nucleotide polymorphism, wherein the single nucleotide polymorphism is characteristic of fluoroquinoline resistance in *Bacillus anthracis*.

 10. The oligonucleotide primer of Claim 9, wherein the primer comprises a polynucleotide tail capable of producing a customized amplicon length.

- 5 11. A method for detecting fluoroquinoline resistance in *Bacillus anthracis* comprise the steps of:
- i. providing a DNA sample from a *Bacillus anthracis*;
 - ii. providing one or more primer pairs from Claim 7;
 - iii. amplifying said DNA with said primer pair; and
 - 10 iv. comparing a result of said amplification step with a result of amplification of a known fluoroquinoline resistant *Bacillus anthracis* with said primer pair.
12. The method of Claim 11, wherein said amplification step further comprises multiplexing.
13. A method for detecting fluoroquinoline resistance in *Bacillus anthracis*
- 15 comprising the steps of:
- i. providing a DNA sample from *Bacillus anthracis*;
 - ii. providing one or more oligonucleotides from Claim 1;
 - iii. combining said oligonucleotide and said DNA under conditions whereby said oligonucleotide binds to said DNA; and
 - 20 iv. detecting the presence or absence of bound oligonucleotide, wherein the presence of bound oligonucleotide indicates fluoroquinoline resistance in *B. anthracis*.
14. The method of claim 13, wherein said oligonucleotide comprises an observable marker.
- 25 15. The method of Claim 14, wherein said observable marker is a fluorescent or radioactive group.
16. A method for detecting a fluoroquinoline resistance in *Bacillus anthracis* comprising the steps of:
- i. providing a DNA sample from a *Bacillus anthracis*;
 - 30 ii. providing one or more primer pairs from Claim 7;
 - iii. providing one or more primers from Claim 9; and

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- iv. amplifying said DNA with said primer pairs and said primer;
- v. comparing the results of said amplification step with results of amplification of a known fluoroquinolone resistant *B. anthracis* with said primers.

17. A kit for the molecular detection of fluoroquinolone resistance in
10 *Bacillus anthracis* strain by amplification of DNA, said kit comprising:
one or more oligonucleotide primers from Claim 1, wherein the
oligonucleotide primer is capable of indicating fluoroquinolone resistance in
Bacillus anthracis.
18. The kit of Claim 17 further comprising dNTPs, taq polymerase, salts
15 and buffers suitable for causing amplification of said DNA in a PCR instrument.
19. The kit of Claim 18 wherein said dNTPs are labeled with a fluorescent
or radioactive group.
20. A kit for molecular detection of fluoroquinolone resistance in *Bacillus*
anthracis by assay of DNA, wherein the DNA is characteristic of a fluoroquinolone
20 resistance, said kit comprising one or more primers from Claim 9.
21. The kit of Claim 20, wherein said primers are labeled with a
fluorescent or radioactive group.
22. The kit of Claim 21, further comprising salts and buffers suitable for
causing binding of said DNA to said primers.

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